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U.S. NAVY EOD COMBAT DEVELOPMENT

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WHAT IS EOD?

MISSION

- The Explosive Ordnance Disposal (EOD) mission is to **eliminate hazards** from ordnance **which jeopardize operations** supporting national military strategies by providing specially trained, combat ready and highly mobile forces. As the only military force trained for this mission, U.S. Military EOD personnel must be prepared to deal rapidly with **land, sea, and air threats** from **conventional, special** (e.g., nuclear, chemical, and biological), **or unconventional ordnance.**

EOD PLATOON STRUCTURE

Naval Special Warfare (NSW)

NAVSOF Plt CDR
LT 2nd Tour

NAVSOF APlt CDR
LDO 1st Tour

Team Leader
Team Member

Team Leader
Team Member

Team Leader
Team Member

Team Leader
Team Member

Special Operations Forces (SOF)

SOF Platoon CDR
LT 2nd Tour

Team Leader
Team Member

Team Leader
Team Member

MCM Platoon CDR:
LT 2nd Tour/
LDO 1st Tour

Platoon LCPO

Mine Counter Measures (MCM)

Team Leader
Team Member
Team Member

Team Leader
Team Member
Team Member

- Platoons organize into smaller elements as required (three-man, two-man)
- Small teams require lighter, smaller, multi-functional EOD equipment

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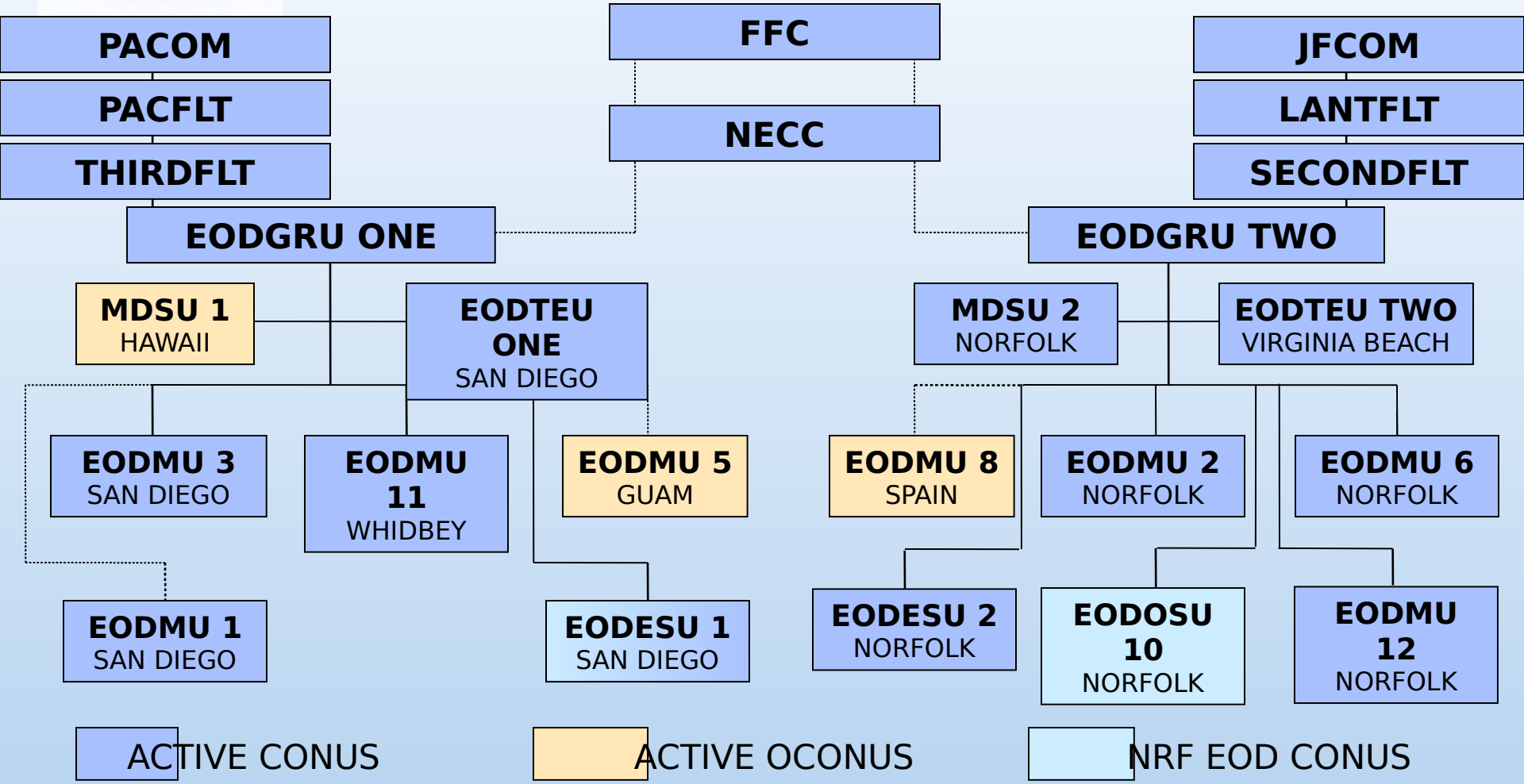
EOD ORGANIZATION TODAY



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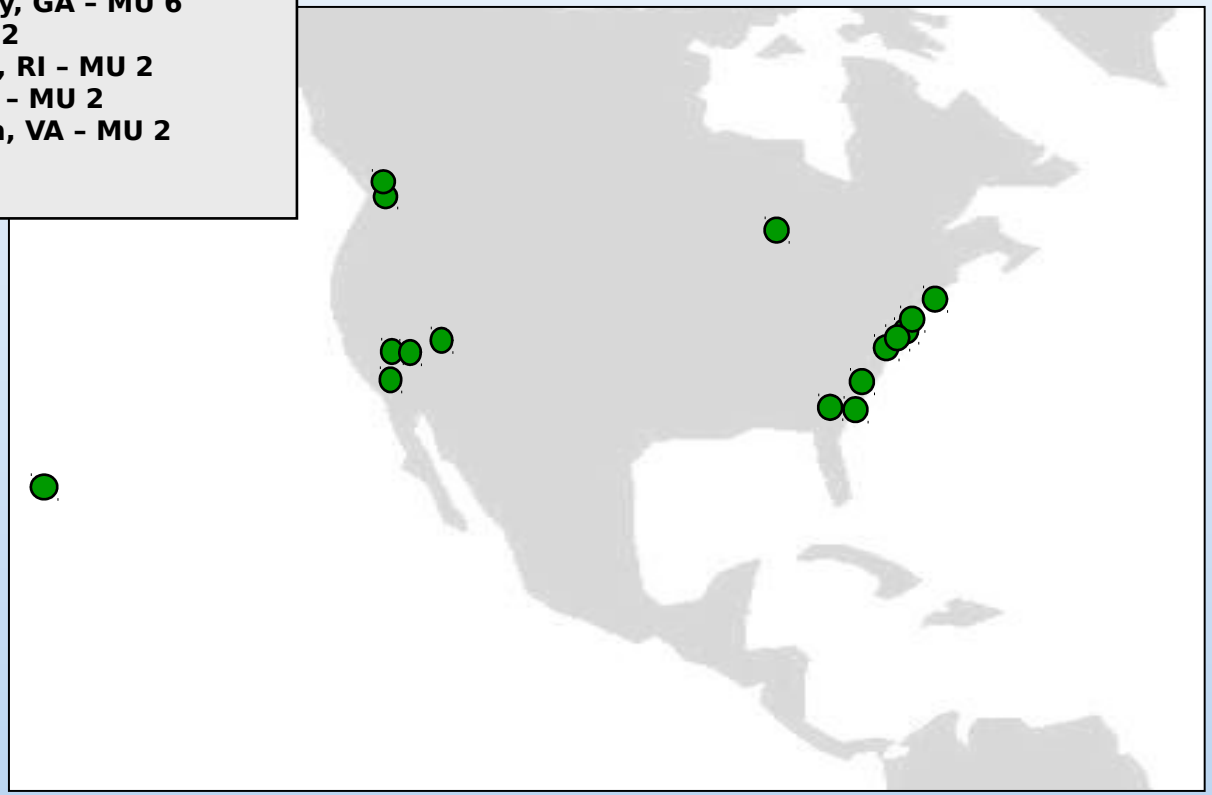
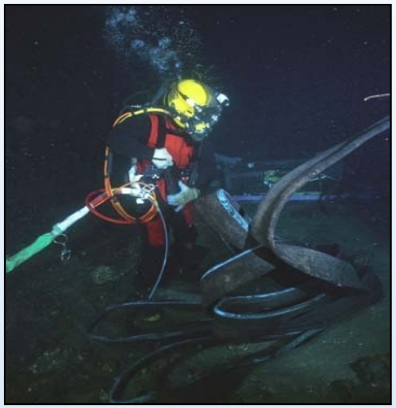
CONUS EOD SHORE DETACHMENTS

EOD Shore Detachments

EODGRU ONE:	EODGRU TWO
Whidbey Island, WA – MU 11	Mayport, FL – MU 6
Bangor, WA – MU 11	Panama City, FL – MU 6
China Lake, CA – MU 3	Kings Bay, GA – MU 6
Fallon, NV – MU 3	Crane, IN – MU 2
Pearl Harbor, HI – MU 3	Newport, RI – MU 2
Point Mugu, CA – MU 3	Earle, NJ – MU 2
North Island, CA – MU 3	Dahlgren, VA – MU 2
	Yorktown, VA – MU 2
	Norfolk, VA – MU 2



MOBILE DIVING AND SALVAGE (MDS)



Fleet Support

- U/W Ships Husbandry
- Force Protection dive support
- U/W area search
- Unmanned Underwater Vehicle (UUV) program lead

Expeditionary Salvage

- Search and recovery
- Surface supplied/SCUBA
- Fly-away mixed gas dive capability

Harbor Clearance

- Full spectrum salvage/refloating
- Underwater cutting/welding
- Limited demolition

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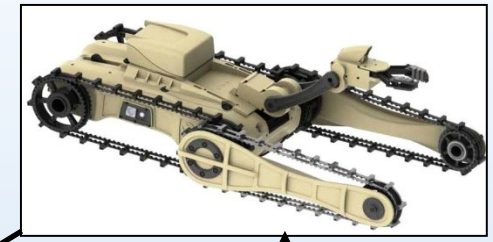
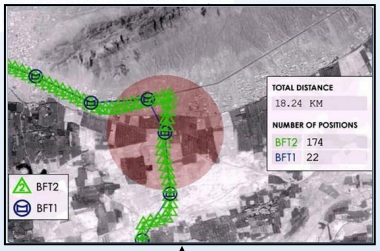
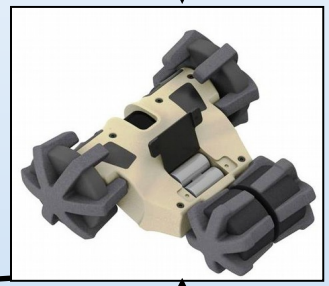
SYSTEM INTEGRATION CONCEPT EOD OPERATOR AS A SYSTEM (OAAS)

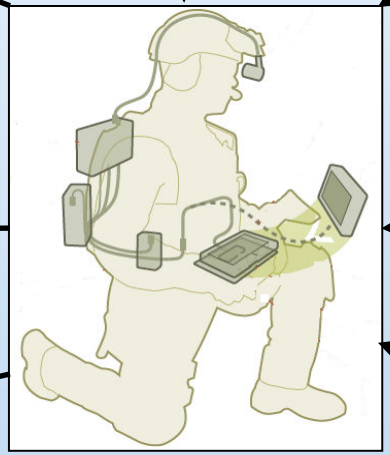




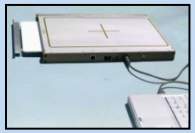
Maritime-
VSW/MCM

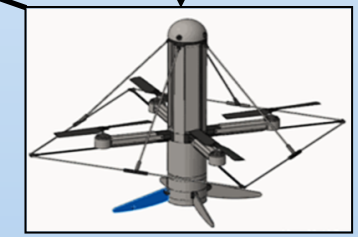


JSEOD/COIN



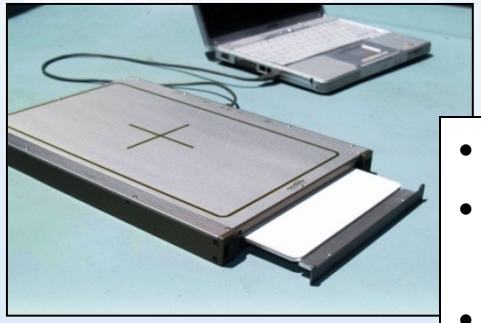
SOF/NAVSOF



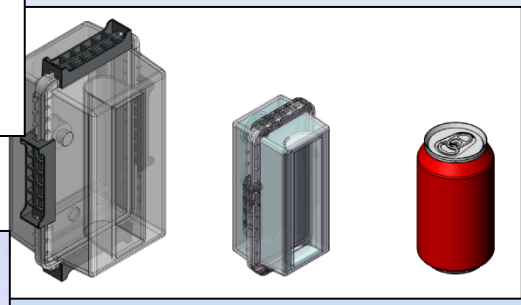


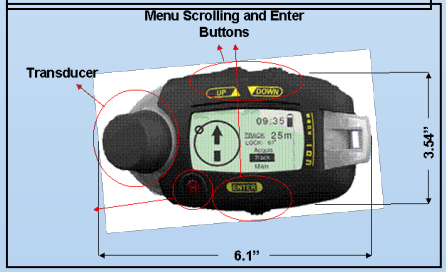
SENSOR/INPUT

SMALLER- LIGHTER- ENHANCED



- Operator as a System approach in R&D
- Move development as close to the operator as possible
- Navy Responsibility
- Navy EOD Warrior Skills
- Staying Ahead of the Global Threat





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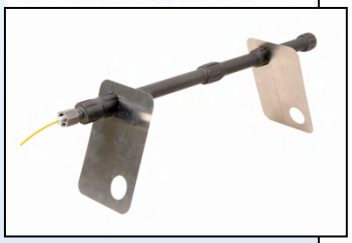
TITAN CARTRIDGE ACTUATED CIED TOOL SET



Program Information:

- WSESRB Approval 1st Qtr FY13
- COTS Procurement
- Enhanced stand assembly will be procured as part of kit
- Submitted by EODMU2 SOF Support Platoon

Program description:

- Requirement: Replacement for the PAN and Titanium II Disrupter kits
- Determine replacement disrupter, for the PAN and the T2 current capability, for EOD SOF/NAVSOF users The Titan replaces (2) current tool sets and the PAN disrupter support stand.

Comments:

- Phased Replacement-Technology Refresh (PRTR)
- COTS Procurement as TOA Replacement for the PAN and the T2 Light Weight Disrupter

Status:

- Procurement underway with ACR submitted for TOA add.

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U/W ROBOTICS ASSESSMENT/DOWN SELECT

- **VIDEORAY**

- **SEABOTIX**

Program Information:

- Concept submitted concurrently by EOD1 EODMU2 and EODMU1 by MCM operators for Mine Countermeasures. Submitted by EODCS at EODMU2 Detachment Norfolk VA for Force Protection diving including Limpet search.

- Quote from EOD2 EODMU6 Detachment Mayport in 2011 "why are we still diving on timed underwater IEDs when we have robotics to respond to IEDs on the surface?"

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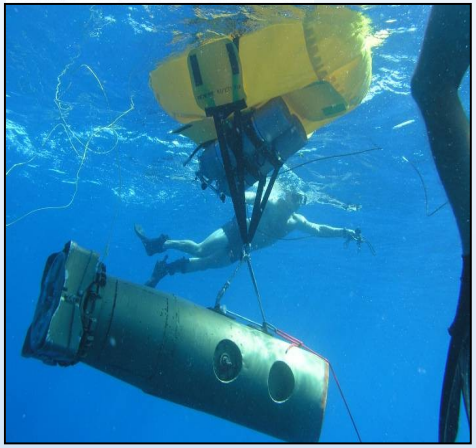
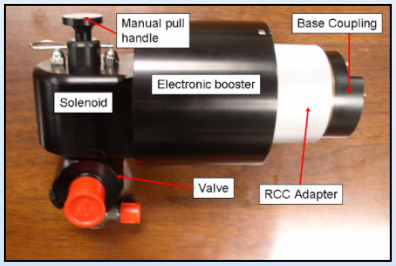
ORDNANCE RECOVERY AIRBAG (ORCA)





Program Information:

- Modify ORCA according to user needs – Jun 10
- Transition ORCA to POR (MK 2 Lift Balloon – TBD)
- COTS Fielded FY-11
- Submitted by EOD2/EODC EODMU6 MCM Platoon

Program Description:

- Use SubSalve Mk V U/W lift system to replace MK 2 lift balloon
- System has been in use successfully since late FY-10
- Replaces Obsolete MK2 (1970s POR)

Comments:

- Currently COTS Procurement as TOA Replacement
- Completion of Transition ORCA from EOD/LIC to PMS-408 for support.
- Requires final paperwork for Program of Record (POR) substitute for MK2 Lift Balloon

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ADVANCED RAM AIR PARACHUTE SYSTEMS (MFF ARAPS)

Program Information:

- Sponsor: SFAE-SDR-CIE Natick MA.
- WARCOM requirements were requested in 2nd Qtr FY12
- The MFF ARAPS is in the OT phase with the Army at Natick FY13
- Submitted by EODCS EODGRU2 N7

Program Information:

MFF ARAP System (Intruder)

- **360 Main Parachute Specifications**
- **Part Number:** 825200 (Main Canopy)
- **Suspended Weight:** 450 lbs (204 kg)
- **Deployment Altitude Maximum:** 25,000 ft. MSL (7620 m)

Comments:

Force wide: 450 systems

Cost per system: $11,000 ($4.95M)

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LIGHT WEIGHT DEMOLITION DEVICE (LWDD)

Program Information

- ONR development under RTT FY08
- LWDD effort completes the requirement under ONR funding for a firing device up-grade for EOD SOF/NAVSOF (ACR submitted for replacement across the force)
- Submitted by EOD2 EODMU2 Platoon 2-1-2

Program Description:

- MILSPEC and WSESRB approved Handheld firing device designed for Navy EOD use.
- The LWDD will fire (3) sizes of NONEL and 80 Military electric blasting caps in series
- Civilian designation is the Mini D80
- The LWDD Kit is composed of the, LWDD Spare Battery tray, Wrench with 3 each NONEL tip and the textile pouch (MOLLE)

Comments:

- COTS Procurement as TOA Replacement for the CD450J
- Phased Replacement-Technology Refresh (PRTR)
- Force wide: 400
- Cost per Kit: $ 535.00 ($214K)
- **Status:**
- **Fielding Underway**

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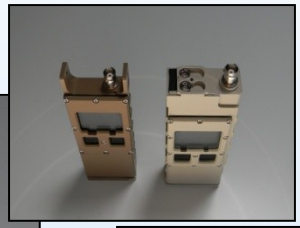
MEDUSA COMBINATION RC/TIMED DETONATOR



Program Information:

- SMS Development: WSESRB Approval 4th Qtr FY12
- Submitted by EODC EODMU12 Platoon 12-1-2

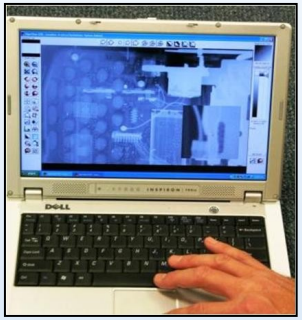
Program Description:

- Development of a radio frequency/timer functioned firing device suitable for Navy EOD SOF/NAVSOF, dismounted operations
- Rapid Prototype effort with Sericore in order to have a fully WSESRB approved product available for User Assessment in 12months

Comments:

- COTS Procurement as TOA Replacement for Mk-186
- Phased Replacement-Technology Refresh (PRTR)
- Force wide: 180 Kits
- Cost per Kit: $ 21,000 ($3.78M)

CIED X-RAY MMX SYSTEM TECHNOLOGY REFRESH



Program Information:

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- Contract for Test Article 1st Qtr FY13
- Combined DT/OT 2nd Qtr FY13
- (Retrofit) Procurement Decision 4th Qtr FY13
- Submitted by EOD2 CEXC element Afghanistan

Program Description:

- Nex-ray MMX system performance, affordability and availability are limited by the CCD technology
- Remote Over The Air transmission of X ray data will be included in the Technology Refresh

Comments:

- Phased Replacement-Technology Refresh (PRTR)
- Force wide: 500 systems
- Cost per system: $ 7,500 ($3.75M)

Status:

- On contract

ENHANCED DIVER VISION SYSTEM (EDVS)

Program Information:

- There is no underwater diver vision system that provides extremely close focus and details without visible light sources of Underwater IEDs (UWIEDs) for low light search of High Value Targets (HVTs).
- The AN/PVS-21 NVD integrated into a Navy dive mask could provide the required close-quarter vision enhancement without introducing visible white light.

Program Description:

- The AN/PVS-21 integrated into a standard divers mask would provide a low volume, lightweight capability.
- Conduct AN/PVS-21 housing redesign & faceplate integration for underwater use with a binocular or monocular version in the currently approved Navy FFM Dive masks.

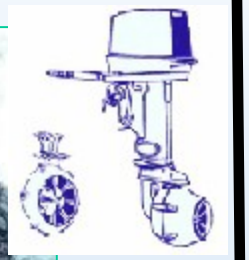
Comments:

- Procurement of Ammunition, Navy & Marine Corps (PANMC)
- PANMC for procurement through the FYDP
- Force wide: 160 Kits
- Cost per Kit: $ 24,000 ($3.84M)

Status:

- User assessment under LPD-43 scheduled for September.

SPECIAL INSERTION MULTI-FUEL ENGINE



Program Information:

- NSWC PCD Expeditionary and Maritime Systems Department
- NSWDG testing of 30HP unit underway
- Requires development of “insertion-stowed “ to “transom-
- Underway” mechanical swing assembly for helo and para insertion packages

Program Description:

- MILSPEC 30-55HP size outboards
- Multi-Fuel Capable, including kerosene, JP-4, JP-5, JP-8, Jet A and Jet B as well as standard gasoline.
- De-Watering System, required for Air to water special insertion

Comments:

- NSWC PCD Expeditionary and Maritime Systems Department

Status:

- 30HP Engine fielded June 2013. Development of mechanical swing assembly awaiting funding.

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MODULAR CRAFT COMMUNICATIONS PACKAGE (MCCP)

Program Information:

- Mariner adapted digital software programmable, multi-channel, multi-function and multi-band radio system with embedded information security
- IFF emergency beacon capable
- Blue Force identification and tracking
- Precision Global Positioning System based geo-position and navigation data

Program Description:

- The MCCP will provide EOD forces a drop-In capability for communications in support of full spectrum EOD missions afloat. Small craft operations include Mine Countermeasures, Mid-Ocean Parachute response, expeditionary diving and salvage, amphibious and littoral EOD combat support.

Comments:

- Design a waterproof modular container system that has external connectivity for use in various EOD Surface craft.
- Force wide: 84 Units as IOC (60 ea CRRC/24 ea 11M RHIB)
- Cost per MCCP: $ 5.5K ($462K)

Status:

- Unfunded concept

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AIR ASSAULT PROTECTIVE EQUIPMENT CASE (APECS)

- **Note: No suitable COTS case available**

Program Information:

- Submitted by EODC EODMU3 Platoon
- MMX (COTS) damage to units during fielding (Dust /impact)
- MMX and accessory components form factor & total EOD SOF/NAVSOF dismounted load-out size (Too heavy/bulky)

Program Description:

- Protective equipment case designed for lightweight cover of high value X-ray
- **Initial Inventory Objectives**
- SOF – *28*, NAVSOF– *16* = SOF/NAVSOF TOTAL – *44*
- Fleet Fill – 200, procurement through ESUs

Comments:

- Manufactured to specifications by Thermofab Inc.

Status:

- Fielded

COMBAT POWER MANAGEMENT

Program Information:

- The PMK eliminates the plethora of “single-purpose chargers” in use today, by utilizing any energy source to simultaneously charge any military rechargeable battery (or a DeWalt battery) and also power any attached gear. To allow the PMK to power the diverse set of gear used by the EOD Platoons, common military rechargeable batteries and a Protonex power unit (the SPM) were used, and “smart” cables were developed to link the SPM with EOD-specific equipment.

ZUES COIL PACKS 4 X 250FT

Program Information:

- Submitted by EODC EODESU2
- Requirement for replacement of exhausted 1980s procurement of disposable demolition wire that was no longer available.

Program Description:

- Determine characteristics of lightweight demolition wire replacement
- Identify vendor that can provide 1M ft of wire as initial procurement
- Primarily used in U/W diving and dismounted patrol operations.
- Fleet Fill – 400 procurement through ESUs

Comments:

- Each Coil Pack has 4 each flat packs of 250 ft total coil pack 1000ft. Weight per flat pack is 0.46lb
- Cost per MCCP: $ 5.5K ($462K)

CONTACT & QUESTIONS

COMEODGRU TWO N8
2520 Midway Rd
Suite 400
Virginia Beach, VA 23459

- **Mr. Sal Dentu (N8 Requirements Officer)**
  - Mr. Charles Herndon (Surface Ordnance)
  - Mr. Richard Graves (Underwater Ordnance)

- **NIPR:**
  - charles.herndon@navy.mil
  - richard.graves@navy.mil

- **SIPR: Available**

- **W: (757) 422-7186**
  - Extensions:
    - 2315 (Mr. Graves)
    - 2316 (Mr. Herndon)

BACK-UP SLIDES

WORLDWIDE RESPONSIBILITIES

- **Navy EOD Forces shall be able to:**
  - Conduct MCM (reacquire, ID, neutralize) against moored, drifting, and bottom mines in shallow and deep water zones
  - Locate, ID, RSP, and dispose of all ordnance (domestic, foreign) (conventional, nuc, chem, bio, IED, etc…)
  - Provide flight deck support
  - Conduct diving and demo to eliminate subsurface ordnance and obstacles
  - Provide other EOD support (AT/FP, FID, CT/CP, etc…)
  - Enable access
- **Trained on all types of devices:**
  - U/W ordnance (torpedoes, depth charges, Limpet mines, etc..)
  - Sea mines (magnetic, seismic, acoustic, UEP)
  - IED’s
  - Surface and Air ordnance (Bombs, Missiles, Grenades, Rockets, Landmines, Projectiles, etc…)
  - Chemical/Biological weapons (explosive “safe-ing”)
  - Nuclear weapons
  - WMD
  - RDD/IND